101009317

FIG. 1A

FIG. 1B

PEPTIDE	SEQUENCE	MASS (m/z)
T-2	$G^1 \cdot F \cdot C \cdot (R)$	586.6 (586.7)
CT-1	$C \cdot R \cdot C \cdot L$	704.5 (703.9)
T-3	$C \cdot L \cdot C \cdot R$	704.6 (703.8)
CT-2	$C \cdot R \cdot R \cdot G \cdot V \cdot C$	903.0 (903.1)
T-4	$R \cdot G \cdot V \cdot C \cdot R$	694.3 (694.8)
CT-3	$R \cdot C \cdot I \cdot C \cdot T \cdot R^{18} \cdot G^1 (F)$	1164.5 (1165.7)
T-1	$C \cdot I \cdot C \cdot T \cdot R$	805.4 (805.0)
MeOH/HCl	$T \cdot R^{18} \cdot G^1 \cdot F \cdot C \cdot R \cdot C \cdot L \cdot C \cdot R \cdot R \cdot G \cdot V \cdot C \cdot R \cdot C \cdot I \cdot C$	not analyzed

FIG. 2A

$G^1 \cdot F \cdot C \cdot R \cdot C \cdot L \cdot C \cdot R \cdot R \cdot G \cdot V \cdot C \cdot R \cdot C \cdot I \cdot C \cdot T \cdot R^{18}$

FIG. 2B

MASS (m/z)

Th-1

$G^1-F^2-C^3-R^4$

$C^{14}-I^{15}-C^{16}-T^{17}-R^{18}$

$C^5-L^6-C^7-R^8$

Th-2

$G^{10}-V^{11}-C^{12}-R^{13}$

971.6 (971.4)

1044.0 (1044.3)

Th-3

$G^1-F^2-C^3-R^4$

$C^{14}-I^{15}-C^{16}-T^{17}-R^{18}$

$C^5-L^6-C^7-R^8$

Th-4

$G^{10}-V^{11}-C^{12}-R^{13}$

1194.0 (1193.8)

822.3 (822.2)

FIG. 3

101009817

PG-1

RTD-1

FIG. 4B

Circulin A

FIG. 4A

RTD-1

PG-1 R^1-G-R-L-C-Y-C-R-R-F-C-V-C-V-G-R^{18}

RTD-1 R^{18}-G-F-C-R-C-L-C-R-R-G-V-C-R-C-I-C-T
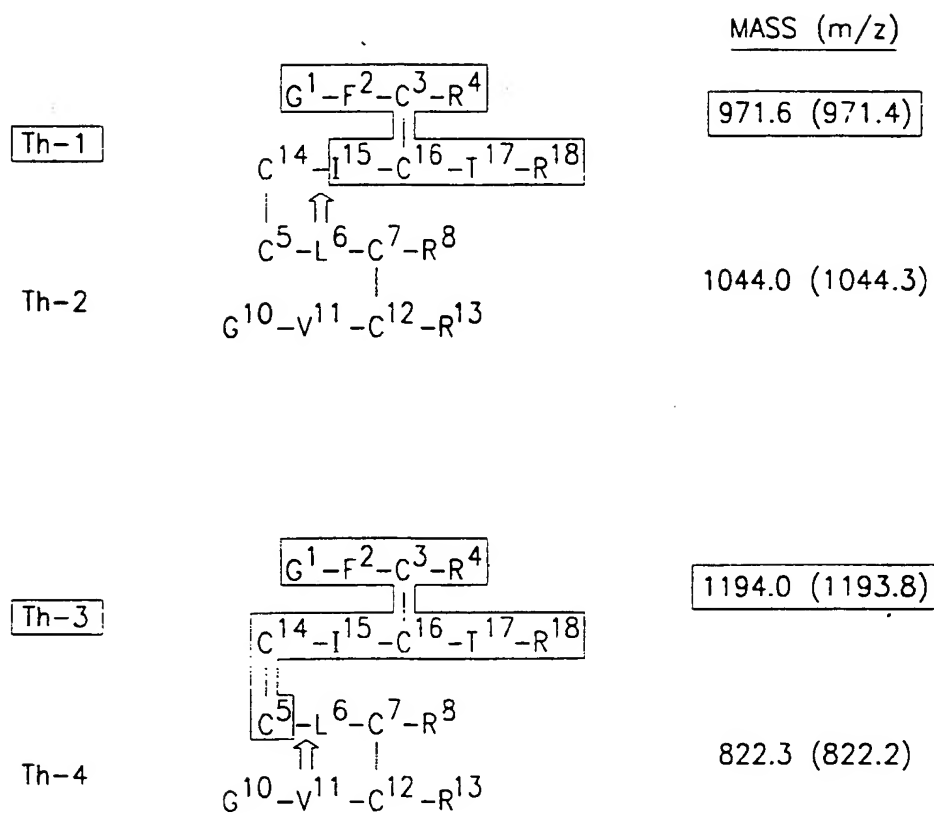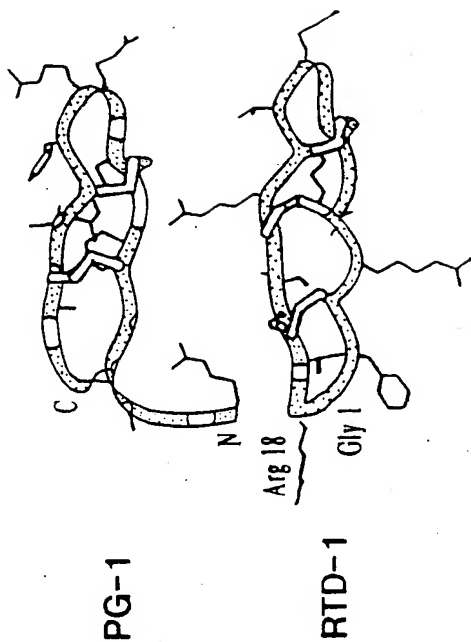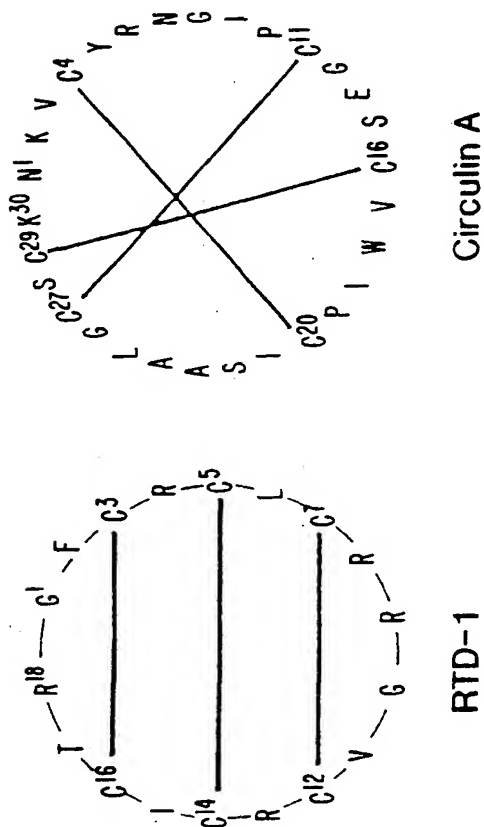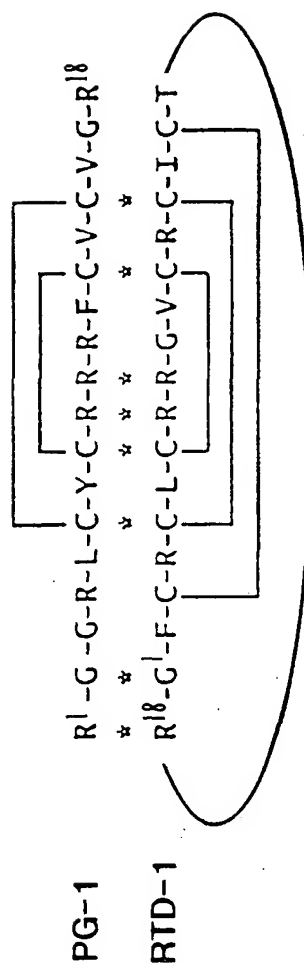
FIG. 4C

ATOM	1	N	ARG	1	4.445	1.973	1.040	0.00	0.00	N
ATOM	2	CA	ARG	1	5.522	1.436	0.144	0.00	0.00	C
ATOM	3	C	ARG	1	4.975	0.520	-1.001	0.00	0.00	C
ATOM	4	C	ARG	1	5.013	0.909	-2.171	0.00	0.00	O
ATOM	5	CB	ARG	1	6.757	0.901	0.940	0.00	0.00	C
ATOM	6	CG	ARG	1	8.115	0.817	0.196	0.00	0.00	C
ATOM	7	CD	ARG	1	8.247	-0.348	-0.805	0.00	0.00	C
ATOM	8	NE	ARG	1	9.635	-0.394	-1.339	0.00	0.00	N1+
ATOM	9	CZ	ARG	1	10.094	-1.285	-2.220	0.00	0.00	C
ATOM	10	NH1	ARG	1	9.363	-2.248	-2.726	0.00	0.00	N
ATOM	11	NH2	ARG	1	11.336	-1.194	-2.598	1.00	0.00	N
ATOM	12	H	ARG	1	4.004	2.884	0.861	0.00	0.00	H
ATOM	13	HA	ARG	1	5.896	2.332	-0.389	0.00	0.00	H
ATOM	14	1HB	ARG	1	6.913	1.571	1.809	0.00	0.00	H
ATOM	15	2HB	ARG	1	6.517	-0.076	1.403	0.00	0.00	H
ATOM	16	1HG	ARG	1	8.325	1.782	-0.307	0.00	0.00	H
ATOM	17	2HG	ARG	1	8.908	0.718	0.964	0.00	0.00	H
ATOM	18	1HD	ARG	1	7.985	-1.303	-0.303	0.00	0.00	H
ATOM	19	2HD	ARG	1	7.523	-0.218	-1.635	0.00	0.00	H
ATOM	20	HE	ARG	1	10.329	0.298	-1.044	1.00	0.00	H
ATOM	21	1HH1	ARG	1	8.398	-2.263	-2.391	0.00	0.00	H
ATOM	22	2HH1	ARG	1	9.794	-2.889	-3.396	0.00	0.00	H
ATOM	23	1HH2	ARG	1	11.891	-0.439	-2.191	0.00	0.00	H
ATOM	24	2HH2	ARG	1	11.669	-1.886	-3.272	0.00	0.00	H
ATOM	25	N	GLY	2	4.471	-0.678	-0.668	0.00	0.00	C
ATOM	26	CA	GLY	2	3.645	-1.487	-1.607	0.00	0.00	C
ATOM	27	C	GLY	2	2.571	-2.369	-0.935	0.00	0.00	O
ATOM	28	O	GLY	2	2.483	-3.558	-1.244	0.00	0.00	H
ATOM	29	H	GLY	2	4.420	-0.799	0.356	0.00	0.00	H
ATOM	30	1HA	GLY	2	3.133	-0.847	-2.352	0.00	0.00	H
ATOM	31	2HA	GLY	2	4.311	-2.140	-2.202	0.00	0.00	N
ATOM	32	N	PHE	3	1.744	-1.787	-0.048	1.00	0.00	C
ATOM	33	CA	PHE	3	0.707	-2.540	0.716	1.00	0.00	C
ATOM	34	C	PHE	3	-0.574	-1.652	0.805	1.00	0.00	O
ATOM	35	O	PHE	3	-0.719	-0.840	1.725	1.00	0.00	C
ATOM	36	CB	PHE	3	1.236	-2.949	2.125	1.00	0.00	C
ATOM	37	CG	PHE	3	2.397	-3.960	2.159	1.00	0.00	C
ATOM	38	CD1	PHE	3	3.705	-3.524	2.398	1.00	0.00	C
ATOM	39	CD2	PHE	3	2.159	-5.321	1.934	1.00	0.00	C
ATOM	40	CE1	PHE	3	4.760	-4.433	2.407	1.00	0.00	C
ATOM	41	CE2	PHE	3	3.215	-6.230	1.945	1.00	0.00	C
ATOM	42	CZ	PHE	3	4.514	-5.786	2.179	1.00	0.00	C
ATOM	43	H	PHE	3	1.994	-0.817	0.174	1.00	0.00	H
ATOM	44	HA	PHE	3	0.434	-3.475	0.183	1.00	0.00	H
ATOM	45	1HB	PHE	3	1.516	-2.038	2.686	1.00	0.00	H
ATOM	46	2HB	PHE	3	0.399	-3.371	2.714	1.00	0.00	H
ATOM	47	HD1	PHE	3	3.909	-2.478	2.569	1.00	0.00	H
ATOM	48	HD2	PHE	3	1.157	-5.676	1.741	1.00	0.00	H
ATOM	49	HE1	PHE	3	5.768	-4.090	2.587	1.00	0.00	H
ATOM	50	HE2	PHE	3	3.027	-7.279	1.768	1.00	0.00	H

FIG. 5A

ATOM	51	HZ	PHE	3	5.333	-6.491	2.183	1.00	0.00	H
ATOM	52	N	CYS	4	-1.485	-1.783	-0.178	1.00	0.00	N
ATOM	53	CA	CYS	4	-2.676	-0.902	-0.303	1.00	0.00	C
ATOM	54	C	CYS	4	-3.883	-1.384	0.565	1.00	0.00	C
ATOM	55	O	CYS	4	-4.495	-2.417	0.278	1.00	0.00	O
ATOM	56	CB	CYS	4	-3.015	-0.813	-1.807	1.00	0.00	V
ATOM	57	SG	CYS	4	-1.735	0.014	-2.797	1.00	0.00	D
ATOM	58	H	CYS	4	-1.244	-2.461	-0.908	1.00	0.00	H
ATOM	59	HA	CYS	4	-2.421	0.128	0.002	1.00	0.00	H
ATOM	60	HB	CYS	4	-3.217	-1.814	-2.236	1.00	0.00	H
ATOM	61	2HB	CYS	4	-3.953	-0.243	-1.946	1.00	0.00	H
ATOM	62	N	ARG	5	-4.225	-0.622	1.622	1.00	0.00	N
ATOM	63	CA	ARG	5	-5.375	-0.934	2.515	1.00	0.00	C
ATOM	64	C	ARG	5	-6.403	0.241	2.508	1.00	0.00	C
ATOM	65	O	ARG	5	-6.065	1.381	2.846	1.00	0.00	O
ATOM	66	CB	ARG	5	-4.827	-1.238	3.937	1.00	0.00	C
ATOM	67	CG	ARG	5	-5.877	-1.865	4.888	1.00	0.00	C
ATOM	68	CD	ARG	5	-5.313	-2.174	6.285	1.00	0.00	C
ATOM	69	NE	ARG	5	-6.356	-2.883	7.076	1.00	0.00	N1+
ATOM	70	CZ	ARG	5	-6.158	-3.497	8.243	1.00	0.00	C
ATOM	71	NH1	ARG	5	-5.016	-3.482	8.886	1.00	0.00	N
ATOM	72	NH2	ARG	5	-7.153	-4.148	8.774	1.00	0.00	N
ATOM	73	H	ARG	5	-3.631	0.210	1.776	1.00	0.00	H
ATOM	74	HA	ARG	5	-5.883	-1.856	2.164	1.00	0.00	H
ATOM	75	1HB	ARG	5	-3.968	-1.934	3.853	1.00	0.00	H
ATOM	76	2HB	ARG	5	-4.404	-0.313	4.380	1.00	0.00	H
ATOM	77	1HG	ARG	5	-6.752	-1.190	4.979	1.00	0.00	H
ATOM	78	2HG	ARG	5	-6.263	-2.796	4.425	1.00	0.00	H
ATOM	79	1HD	ARG	5	-4.398	-2.793	6.184	1.00	0.00	H
ATOM	80	2HD	ARG	5	-5.007	-1.233	6.787	1.00	0.00	H
ATOM	81	HE	ARG	5	-7.304	-2.991	6.704	1.00	0.00	H
ATOM	82	1HH1	ARG	5	-4.945	-3.988	9.771	1.00	0.00	H
ATOM	83	2HH1	ARG	5	-4.279	-2.952	8.417	1.00	0.00	H
ATOM	84	1HH2	ARG	5	-8.031	-4.162	8.252	1.00	0.00	H
ATOM	85	2HH2	ARG	5	-6.978	-4.625	9.661	1.00	0.00	H
ATOM	86	N	CYS	6	-7.669	-0.051	2.153	0.00	0.00	H
ATOM	87	CA	CYS	6	-8.750	0.970	2.109	0.00	0.00	C
ATOM	88	C	CYS	6	-9.798	0.729	3.238	0.00	0.00	C
ATOM	89	O	CYS	6	-10.685	-0.120	3.112	0.00	0.00	O
ATOM	90	CB	CYS	6	-9.307	1.004	0.667	0.00	0.00	C
ATOM	91	SG	CYS	6	-9.911	2.662	0.297	0.00	0.00	S
ATOM	92	H	CYS	6	-7.825	-1.007	1.819	0.00	0.00	H
ATOM	93	HA	CYS	6	-8.328	1.972	2.283	0.00	0.00	H
ATOM	94	1HB	CYS	6	-8.529	0.778	-0.088	0.00	0.00	H
ATOM	95	2HB	CYS	6	-10.109	0.258	0.513	0.00	0.00	H
ATOM	96	N	LEU	7	-9.654	1.449	4.368	1.00	0.00	N
ATOM	97	CA	LEU	7	-10.388	1.150	5.633	1.00	0.00	C
ATOM	98	C	LEU	7	-11.434	2.249	6.009	1.00	0.00	C
ATOM	99	O	LEU	7	-11.151	3.452	5.967	1.00	0.00	O
ATOM	100	CB	LEU	7	-9.374	0.760	6.757	1.00	0.00	C

FIG. 5B

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ATOM	101	CG	LEU	7	-8.386	1.757	7.435	1.00	0.00	C
ATOM	102	CD1	LEU	7	-7.508	2.568	6.467	1.00	0.00	C
ATOM	103	CD2	LEU	7	-9.054	2.697	8.452	1.00	0.00	C
ATOM	104	H	LEU	7	-8.903	2.151	4.337	1.00	0.00	H
ATOM	105	HA	LEU	7	-10.966	0.215	5.476	1.00	0.00	H
ATOM	106	1HB	LEU	7	-9.954	0.273	7.565	1.00	0.00	H
ATOM	107	2HB	LEU	7	-8.762	-0.073	6.359	1.00	0.00	H
ATOM	108	HG	LEU	7	-7.689	1.128	8.025	1.00	0.00	H
ATOM	109	1HD1	LEU	7	-6.711	3.120	6.998	1.00	0.00	H
ATOM	110	2HD1	LEU	7	-7.007	1.923	5.722	1.00	0.00	H
ATOM	111	3HD1	LEU	7	-8.097	3.320	5.909	1.00	0.00	H
ATOM	112	1HD2	LEU	7	-8.302	3.262	9.032	1.00	0.00	H
ATOM	113	2HD2	LEU	7	-9.705	3.447	7.967	1.00	0.00	H
ATOM	114	3HD2	LEU	7	-9.676	2.141	9.177	1.00	0.00	H
ATOM	115	N	CYS	8	-12.667	1.827	6.355	0.00	0.00	N
ATOM	116	CA	CYS	8	-13.782	2.747	6.706	0.00	0.00	C
ATOM	117	C	CYS	8	-13.756	3.194	8.202	0.00	0.00	C
ATOM	118	O	CYS	8	-13.835	2.372	9.120	0.00	0.00	O
ATOM	119	CB	CYS	8	-15.112	2.052	6.334	0.00	0.00	C
ATOM	120	SG	CYS	8	-15.536	2.183	4.573	0.00	0.00	S
ATOM	121	H	CYS	8	-12.799	0.811	6.359	0.00	0.00	H
ATOM	122	HA	CYS	8	-13.732	3.653	6.080	0.00	0.00	H
ATOM	123	1HB	CYS	8	-15.135	0.991	6.649	0.00	0.00	H
ATOM	124	2HB	CYS	8	-15.953	2.528	6.873	0.00	0.00	H
ATOM	125	N	ARG	9	-13.685	4.516	8.431	0.00	0.00	N
ATOM	126	CA	ARG	9	-13.874	5.123	9.780	0.00	0.00	C
ATOM	127	C	ARG	9	-15.143	6.030	9.740	0.00	0.00	C
ATOM	128	O	ARG	9	-15.171	7.045	9.036	0.00	0.00	O
ATOM	129	CB	ARG	9	-12.598	5.905	10.199	0.00	0.00	C
ATOM	130	CG	ARG	9	-11.403	5.004	10.601	0.00	0.00	C
ATOM	131	CD	ARG	9	-10.168	5.811	11.037	0.00	0.00	C
ATOM	132	NE	ARG	9	-9.107	4.873	11.498	0.00	0.00	N1+
ATOM	133	CZ	ARG	9	-7.962	5.228	12.082	0.00	0.00	C
ATOM	134	NH1	ARG	9	-7.612	6.472	12.300	0.00	0.00	N
ATOM	135	NH2	ARG	9	-7.145	4.287	12.460	0.00	0.00	N
ATOM	136	H	ARG	9	-13.622	5.093	7.583	0.00	0.00	H
ATOM	137	HA	ARG	9	-14.035	4.337	10.547	0.00	0.00	H
ATOM	138	1HB	ARG	9	-12.303	6.603	9.389	0.00	0.00	H
ATOM	139	2HB	ARG	9	-12.846	6.559	11.059	0.00	0.00	H
ATOM	140	1HG	ARG	9	-11.723	4.325	11.418	0.00	0.00	H
ATOM	141	2HG	ARG	9	-11.146	4.340	9.752	0.00	0.00	H
ATOM	142	1HD	ARG	9	-9.805	6.431	10.192	0.00	0.00	H
ATOM	143	2HD	ARG	9	-10.454	6.513	11.848	0.00	0.00	H
ATOM	144	HE	ARG	9	-9.235	3.861	11.406	0.00	0.00	H
ATOM	145	1HH1	ARG	9	-8.298	7.161	11.984	0.00	0.00	H
ATOM	146	2HH1	ARG	9	-6.722	6.657	12.767	0.00	0.00	H
ATOM	147	1HH2	ARG	9	-7.438	3.323	12.293	0.00	0.00	H
ATOM	148	2HH2	ARG	9	-6.278	4.578	12.915	0.00	0.00	H
ATOM	149	N	ARG	10	-16.215	5.637	10.462	0.00	0.00	N
ATOM	150	CA	ARG	10	-17.558	6.306	10.411	0.00	0.00	C

FIG. 5C

ATOM	151	C	ARG	10	-18.386	6.033	9.106	0.00	0.00	C
ATOM	152	O	ARG	10	-19.548	5.622	9.208	0.00	0.00	O
ATOM	153	CB	ARG	10	-17.530	7.803	10.875	0.00	0.00	C
ATOM	154	CG	ARG	10	-18.722	8.328	11.730	0.00	0.00	C
ATOM	155	CD	ARG	10	-19.968	8.899	11.012	0.00	0.00	C
ATOM	156	NE	ARG	10	-20.779	7.815	10.397	0.00	0.00	N1+
ATOM	157	CZ	ARG	10	-22.072	7.865	10.088	0.00	0.00	C
ATOM	158	NH1	ARG	10	-22.840	8.904	10.304	0.00	0.00	N
ATOM	159	NH2	ARG	10	-22.596	6.811	9.533	0.00	0.00	N
ATOM	160	H	ARG	10	-16.078	4.751	10.960	0.00	0.00	H
ATOM	161	HA	ARG	10	-18.128	5.773	11.197	0.00	0.00	H
ATOM	162	1HB	ARG	10	-16.626	7.944	11.500	0.00	0.00	H
ATOM	163	2HB	ARG	10	-17.343	8.470	10.010	0.00	0.00	H
ATOM	164	1HG	ARG	10	-19.024	7.571	12.481	0.00	0.00	H
ATOM	165	2HG	ARG	10	-18.324	9.154	12.353	0.00	0.00	H
ATOM	166	1HD	ARG	10	-20.560	9.461	11.764	0.00	0.00	H
ATOM	167	2HD	ARG	10	-19.665	9.645	10.248	0.00	0.00	H
ATOM	168	HE	ARG	10	-20.325	6.941	10.080	1.00	0.00	H
ATOM	169	1HH1	ARG	10	-22.362	9.705	10.720	0.00	0.00	H
ATOM	170	2HH1	ARG	10	-23.822	8.848	10.030	0.00	0.00	H
ATOM	171	1HH2	ARG	10	-21.958	6.023	9.378	0.00	0.00	H
ATOM	172	2HH2	ARG	10	-23.590	6.840	9.301	0.00	0.00	H
ATOM	173	N	GLY	11	-17.826	6.288	7.910	1.00	0.00	N
ATOM	174	CA	GLY	11	-18.511	6.016	6.617	1.00	0.00	C
ATOM	175	C	GLY	11	-17.565	5.667	5.451	1.00	0.00	C
ATOM	176	O	GLY	11	-17.541	4.520	5.003	1.00	0.00	O
ATOM	177	H	GLY	11	-16.840	6.585	7.986	1.00	0.00	H
ATOM	178	1HA	GLY	11	-19.226	5.175	6.720	1.00	0.00	H
ATOM	179	2HA	GLY	11	-19.136	6.884	6.335	1.00	0.00	H
ATOM	180	N	VAL	12	-16.817	6.655	4.932	1.00	0.00	N
ATOM	181	CA	VAL	12	-15.952	6.477	3.722	1.00	0.00	C
ATOM	182	C	VAL	12	-14.651	5.637	3.988	1.00	0.00	C
ATOM	183	O	VAL	12	-13.950	5.844	4.985	1.00	0.00	O
ATOM	184	CB	VAL	12	-15.688	7.880	3.064	1.00	0.00	C
ATOM	185	CG1	VAL	12	-14.756	8.829	3.857	1.00	0.00	C
ATOM	186	CG2	VAL	12	-15.155	7.773	1.617	1.00	0.00	C
ATOM	187	H	VAL	12	-16.891	7.553	5.419	1.00	0.00	H
ATOM	188	HA	VAL	12	-16.566	5.916	2.987	1.00	0.00	H
ATOM	189	HB	VAL	12	-16.669	8.392	2.979	1.00	0.00	H
ATOM	190	1HG1	VAL	12	-13.729	8.426	3.491	1.00	0.00	H
ATOM	191	2HG1	VAL	12	-14.677	9.824	3.382	1.00	0.00	H
ATOM	192	3HG1	VAL	12	-15.118	8.997	4.887	1.00	0.00	H
ATOM	193	1HG2	VAL	12	-14.141	7.330	1.573	1.00	0.00	H
ATOM	194	2HG2	VAL	12	-15.809	7.151	0.978	1.00	0.00	H
ATOM	195	3HG3	VAL	12	-15.093	8.764	1.127	1.00	0.00	N
ATOM	196	N	CYS	13	-14.317	4.713	3.063	0.00	0.00	N
ATOM	197	CA	CYS	13	-13.052	3.937	3.118	0.00	0.00	C
ATOM	198	C	CYS	13	-11.828	4.755	2.598	0.00	0.00	C
ATOM	199	O	CYS	13	-11.730	5.076	1.409	0.00	0.00	O
ATOM	200	CB	CYS	13	-13.246	2.600	2.374	0.00	0.00	C

FIG. 5D

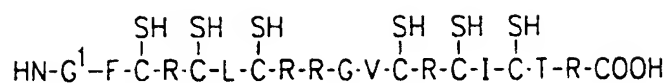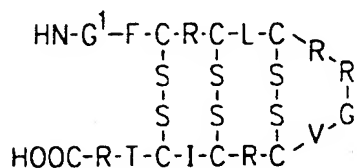|										
ATOM	201	SG	CYS	13	-14.168	1.373	3.345	0.00	0.00	S
ATOM	202	H	CYS	13	-14.951	4.647	2.261	0.00	0.00	H
ATOM	203	HA	CYS	13	-12.854	3.655	4.159	0.00	0.00	H
ATOM	204	1HB	CYS	13	-13.735	2.743	1.392	0.00	0.00	H
ATOM	205	2HB	CYS	13	-12.268	2.139	2.143	0.00	0.00	H
ATOM	206	N	ARG	14	-10.889	5.085	3.504	1.00	0.00	N
ATOM	207	CA	ARG	14	-9.666	5.853	3.152	1.00	0.00	C
ATOM	208	C	ARG	14	-8.532	4.905	2.651	1.00	0.00	C
ATOM	209	O	ARG	14	-7.977	4.113	3.420	1.00	0.00	O
ATOM	210	CB	ARG	14	-9.264	6.723	4.379	1.00	0.00	C
ATOM	211	CG	ARG	14	-7.945	7.536	4.266	1.00	0.00	C
ATOM	212	CD	ARG	14	-7.860	8.519	3.077	1.00	0.00	C
ATOM	213	NE	ARG	14	-6.479	9.065	2.938	1.00	0.00	N1+
ATOM	214	CZ	ARG	14	-6.046	10.234	3.413	1.00	0.00	C
ATOM	215	NH1	ARG	14	-6.786	11.050	4.122	1.00	0.00	N
ATOM	216	NH2	ARG	14	-4.818	10.584	3.160	1.00	0.00	N
ATOM	217	H	ARG	14	-11.032	4.677	4.441	1.00	0.00	H
ATOM	218	HA	ARG	14	-9.924	6.571	2.346	1.00	0.00	H
ATOM	219	1HB	ARG	14	-10.097	7.412	4.620	1.00	0.00	H
ATOM	220	2HB	ARG	14	-9.181	6.068	5.270	1.00	0.00	H
ATOM	221	1HG	ARG	14	-7.777	8.084	5.213	1.00	0.00	H
ATOM	222	2HG	ARG	14	-7.104	6.818	4.213	1.00	0.00	H
ATOM	223	1HD	ARG	14	-8.098	7.987	2.134	1.00	0.00	H
ATOM	224	2HD	ARG	14	-8.640	9.304	3.144	1.00	0.00	H
ATOM	225	HE	ARG	14	-5.774	8.543	2.406	1.00	0.00	H
ATOM	226	1HH1	ARG	14	-6.381	11.933	4.437	1.00	0.00	H
ATOM	227	2HH1	ARG	14	-7.735	10.711	4.288	1.00	0.00	H
ATOM	228	1HH2	ARG	14	-4.259	9.941	2.597	1.00	0.00	H
ATOM	229	2HH2	ARG	14	-4.506	11.486	3.525	1.00	0.00	H
ATOM	230	N	CYS	15	-8.170	5.034	1.363	0.00	0.00	N
ATOM	231	CA	CYS	15	-7.079	4.245	0.743	0.00	0.00	C
ATOM	232	C	CYS	15	-5.655	4.759	1.143	0.00	0.00	C
ATOM	233	O	CYS	15	-5.259	5.883	0.814	0.00	0.00	O
ATOM	234	CB	CYS	15	-7.334	4.257	-0.778	0.00	0.00	C
ATOM	235	SG	CYS	15	-8.884	3.429	-1.256	0.00	0.00	S
ATOM	236	H	CYS	15	-8.792	5.616	0.794	0.00	0.00	H
ATOM	237	HA	CYS	15	-7.164	3.186	1.042	0.00	0.00	H
ATOM	238	1HB	CYS	15	-7.333	5.288	-1.182	0.00	0.00	H
ATOM	239	2HB	CYS	15	-6.511	3.736	-1.303	0.00	0.00	H
ATOM	240	N	ILE	16	-4.902	3.917	1.872	1.00	0.00	N
ATOM	241	CA	ILE	16	-3.499	4.208	2.301	1.00	0.00	C
ATOM	242	C	ILE	16	-2.563	3.058	1.802	1.00	0.00	C
ATOM	243	O	ILE	16	-2.787	1.881	2.109	1.00	0.00	O
ATOM	244	CB	ILE	16	-3.362	4.466	3.848	1.00	0.00	C
ATOM	245	CG1	ILE	16	-3.997	3.381	4.774	1.00	0.00	C
ATOM	246	CG2	ILE	16	-3.880	5.877	4.225	1.00	0.00	C
ATOM	247	CD1	ILE	16	-3.464	3.357	6.218	1.00	0.00	C
ATOM	248	H	ILE	16	-5.380	3.056	2.182	1.00	0.00	H
ATOM	249	HA	ILE	16	-3.153	5.136	1.802	1.00	0.00	H
ATOM	250	HB	ILE	16	-2.274	4.477	4.065	1.00	0.00	H

FIG. 5E

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ATOM	251	1HG1	ILE	16	-5.099	3.490	4.779	1.00	0.00	H
ATOM	252	2HG1	ILE	16	-3.827	2.376	4.343	1.00	0.00	H
ATOM	253	1HG2	ILE	16	-3.687	6.125	5.285	1.00	0.00	H
ATOM	254	2HG2	ILE	16	-3.394	6.668	3.624	1.00	0.00	H
ATOM	255	3HG2	ILE	16	-4.969	5.964	4.060	1.00	0.00	H
ATOM	256	1HD1	ILE	16	-3.945	2.557	6.809	1.00	0.00	H
ATOM	257	2HD1	ILE	16	-2.373	3.171	6.247	1.00	0.00	H
ATOM	258	3HD1	ILE	16	-3.652	4.308	6.749	1.00	0.00	H
ATOM	259	N	CYS	17	-1.511	3.396	1.030	1.00	0.00	N
ATOM	260	CA	CYS	17	-0.568	2.392	0.470	1.00	0.00	C
ATOM	261	C	CYS	17	0.877	2.602	1.011	1.00	0.00	C
ATOM	262	O	CYS	17	1.608	3.490	0.562	1.00	0.00	O
ATOM	263	CB	CYS	17	-0.695	2.398	-1.069	1.00	0.00	C
ATOM	264	SG	CYS	17	-0.233	0.772	-1.695	1.00	0.00	S
ATOM	265	H	CYS	17	-1.430	4.391	0.798	1.00	0.00	H
ATOM	266	HA	CYS	17	-0.878	1.380	0.777	1.00	0.00	H
ATOM	267	1HB	CYS	17	-1.734	2.590	-1.399	1.00	0.00	H
ATOM	268	2HB	CYS	17	-0.072	3.185	-1.536	1.00	0.00	H
ATOM	269	N	THRC	18	1.286	1.785	2.001	1.00	0.00	N
ATOM	270	CA	THRC	18	2.596	1.951	2.701	1.00	0.00	C
ATOM	271	C	THRC	18	3.762	1.236	1.943	1.00	0.00	C
ATOM	272	OXT	THRC	18	4.027	0.047	2.147	1.00	0.00	O
ATOM	273	CB	THRC	18	2.448	1.596	4.214	1.00	0.00	C
ATOM	274	OG1	THRC	18	3.682	1.831	4.877	1.00	0.00	O
ATOM	275	CG2	THRC	18	2.017	0.167	4.594	1.00	0.00	C
ATOM	276	HN	THRC	18	0.597	1.079	2.289	1.00	0.00	H
ATOM	277	HA	THRC	18	2.845	3.033	2.723	1.00	0.00	H
ATOM	278	HB	THRC	18	1.702	2.293	4.648	1.00	0.00	H
ATOM	279	HG1	THRC	18	4.200	1.031	4.751	1.00	0.00	H
ATOM	280	1HG2	THRC	18	1.934	0.057	5.692	1.00	0.00	H
ATOM	281	2HG2	THRC	18	1.027	-0.090	4.175	1.00	0.00	H
ATOM	282	3HG2	THRC	18	2.733	-0.599	4.244	1.00	0.00	H
TER										

FIG. 5F

101009817

$$
\begin{array}{ccccccc}
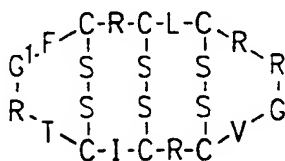& SH & SH & SH & & SH & SH & SH \\
HN-G^1-F-C-R-C-L-C-R-R-G-V-C-R-C-I-C-T-R-COOH
\end{array}
$$

⇩ Air Oxidation

HN-G¹-F·C·R·C·L·C↘R
                    ╲R
     S   S   S   G
     │   │   │   ╱
     S   S   S ╱V
HOOC-R-T-C-I-C-R-C

⇩ Cyclization

$$
\begin{array}{ccccc}
& F & C-R-C-L-C & R \\
G^1 & & S & S & S & R \\
R & & S & S & S & G \\
& T & C-I-C-R-C & V
\end{array}
$$

FIG. 6A

FIG. 6B

101009317
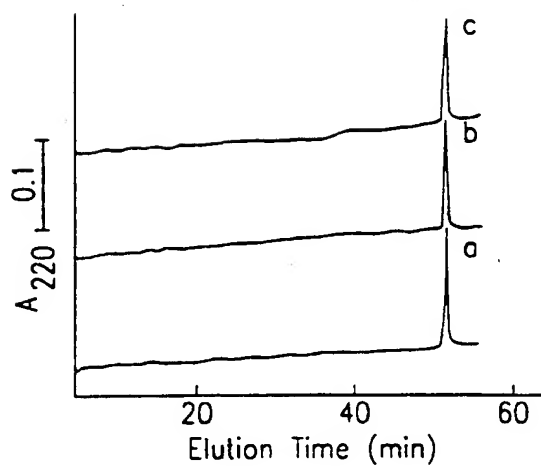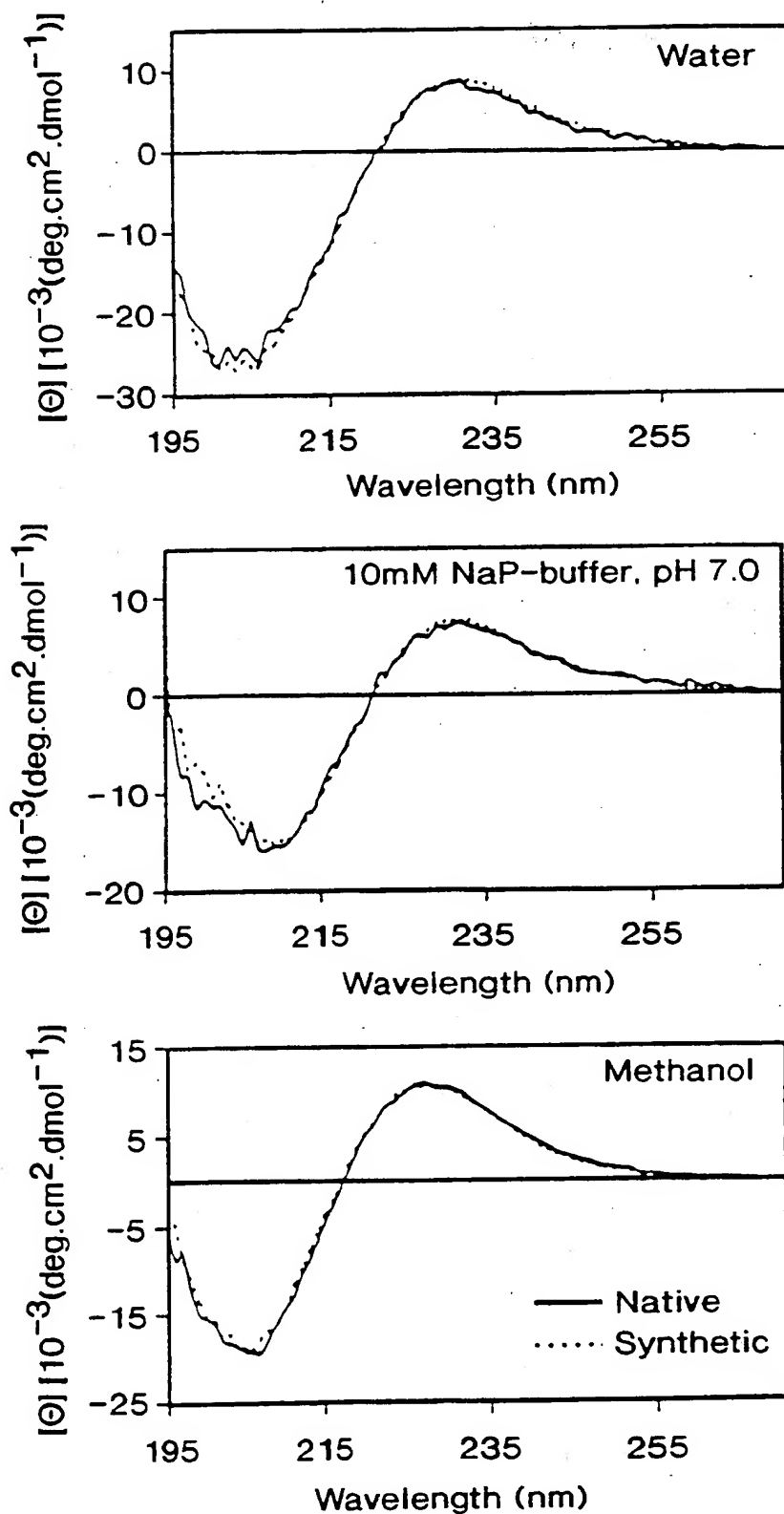
FIG. 6C
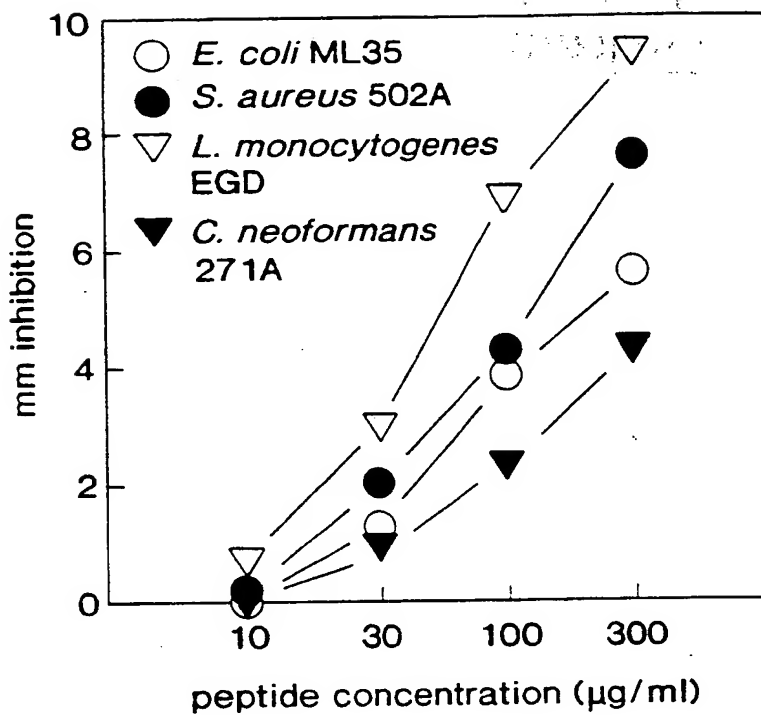
10/009317

FIG. 7
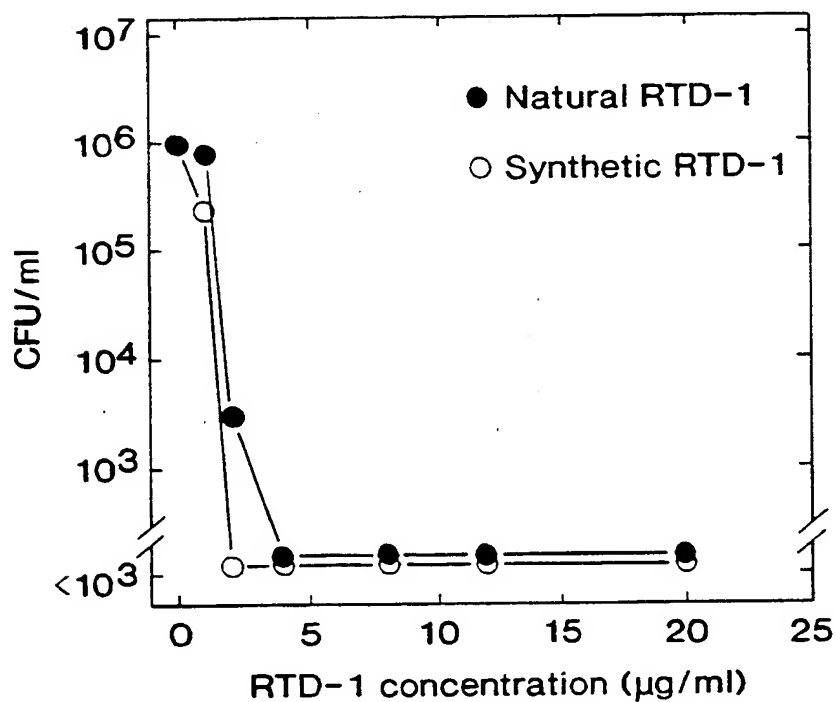
FIG. 8

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FIG. 9A

FIG. 9B

FIG. 9C

SUBSTITUTE SHEET (RULE 26)

101009317
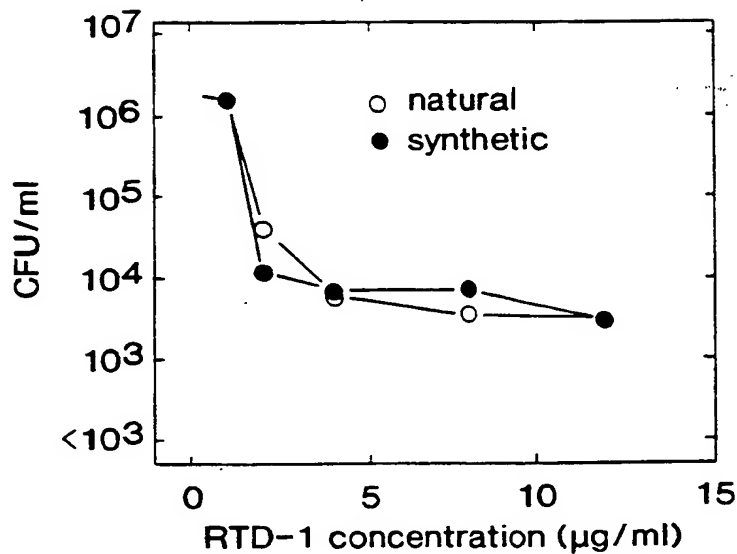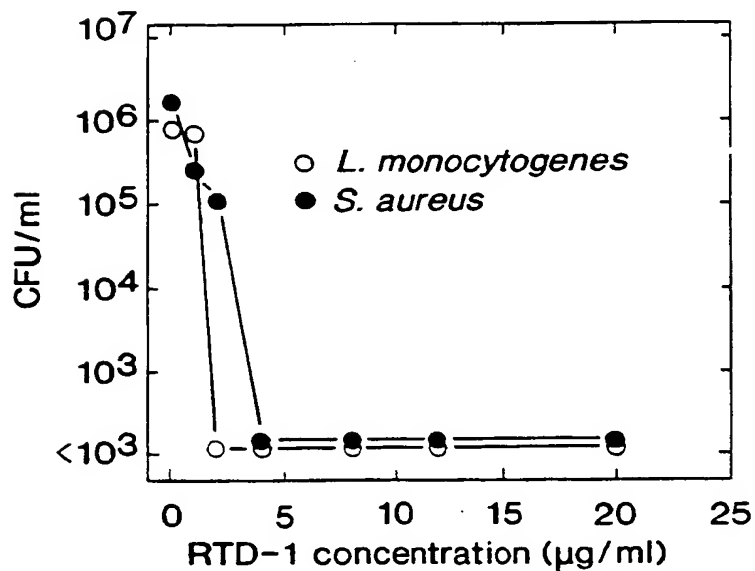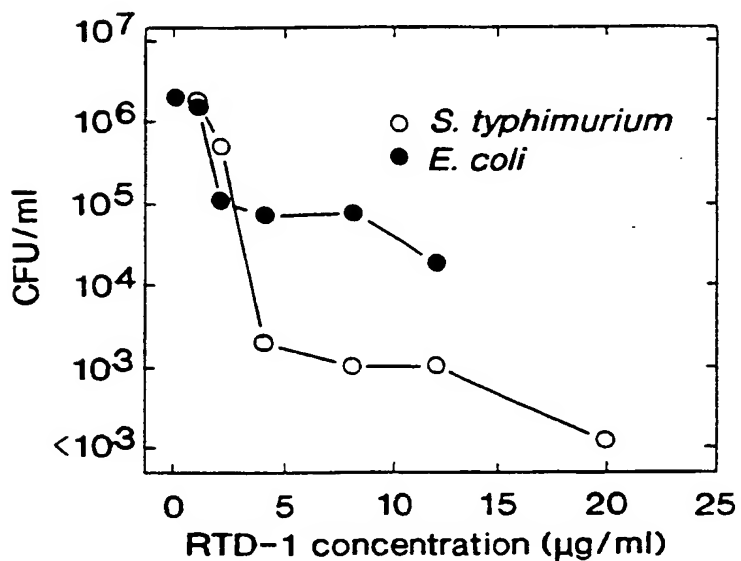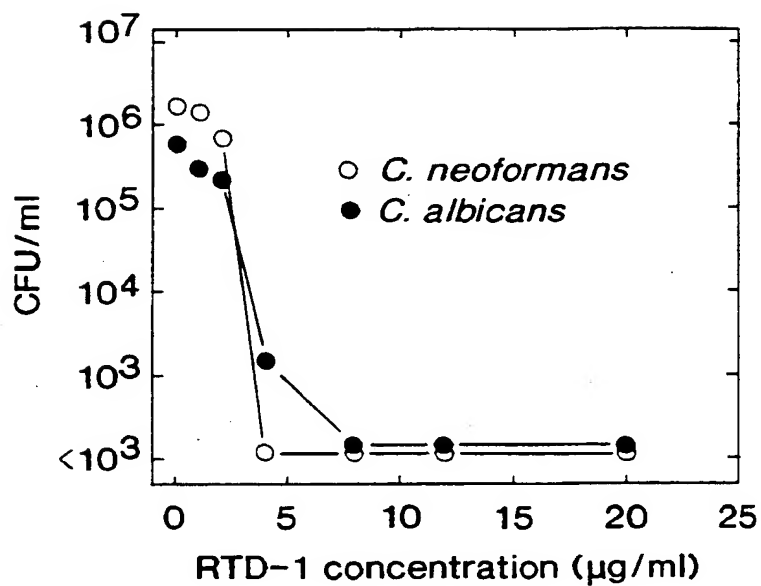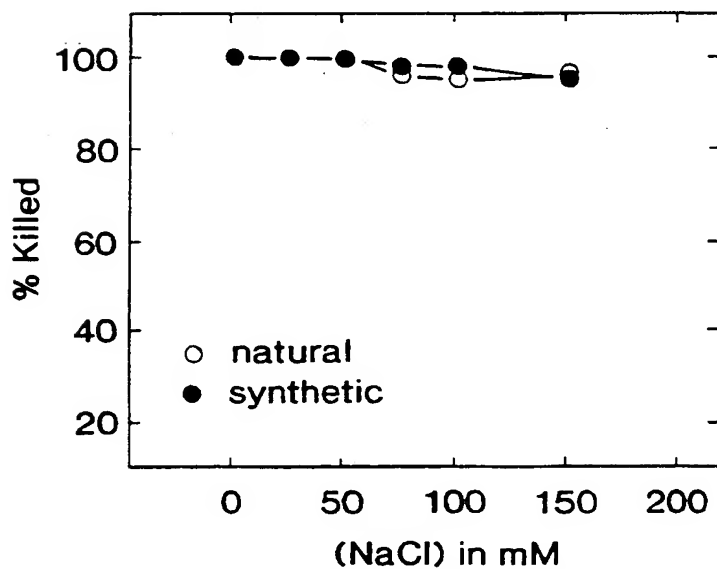
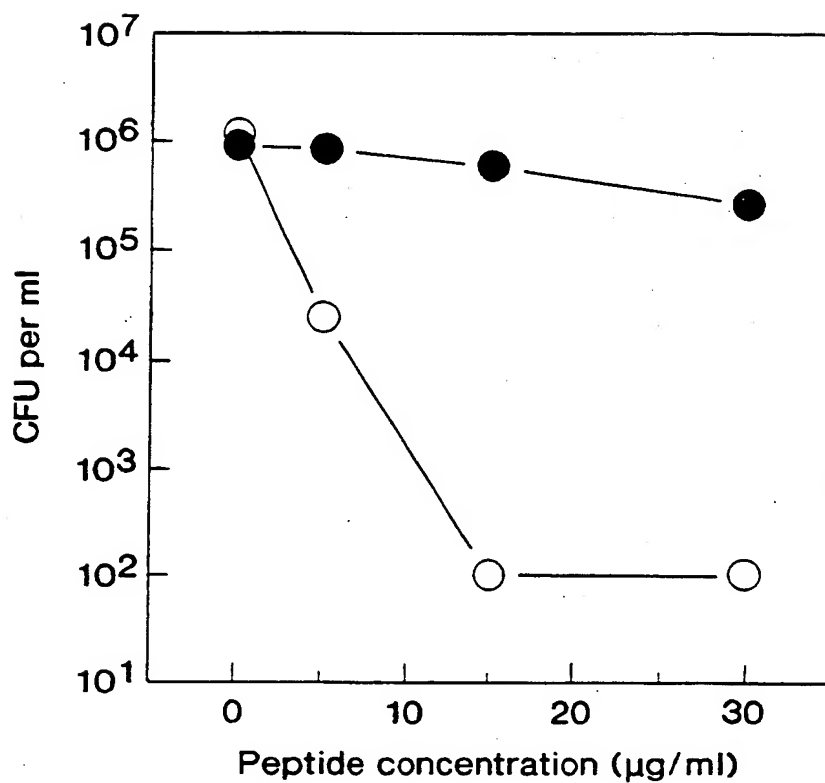

FIG. 9D

FIG. 9E

FIG. 10

101009317

RTD1a

```
GACGGCTGCTGTTGCTACAGGAGACCCAGGACAGAGGACTGCTGTCTGCACTCTCTCTTC          60

ACTCTGCCTAACTTGAGGATCTGTCACTCCAGCCATGAGGACCTTCGCCCTCCTCACCGC         120
                                  M   R   T   F   A   L   L   T   A
CATGCTTCTCCTGGTGGCCCTGCACGCTCAGGCAGAGGCACGTCAGGCAAGAGCTGATGA         180
  M   L   L   V   A   L   H   A   Q   A   E   A   R   Q   A   R   A   D   E
AGCTGCCGCCCAGCAGCAGCCTGGAACAGATGATCAGGGAATGGCTCATTCCTTTACATG         240
  A   A   A   Q   Q   Q   P   G   T   D   D   Q   G   M   A   H   S   F   T   W
GCCTGAAAACGCCGCTCTTCCACTTTCAGAGTCAGCGAAAGGCTTGAGGTGCATTTGCAC         300
  P   E   N   A   A   L   P   L   S   E   S   A   K   G   L   R$^{13}$ C$^{14}$ T$^{15}$ C$^{16}$ T$^{17}$
ACGAGGATTCTGCCGTTTGTTATAATGTCACCTTGGGTCCTGCGCTTTCGTGGTTGACT         360
  R$^{18}$ G$^{1}$ F$^{2}$ C$^{3}$ R   L   L   stop
CCACCGGATCTGCTGCCGCTGAGCTTCCAGAATCAAGAAAAATATGCTCAGAAGTTACTT         420

TGAGAGTTAAAAGAAATTCTTGCTACTGCTGTACCTTCTCCTCAGTTTCCTTTTCTCATC         480

CCAAATAAATACCTTATCGC                                                 500
```

RTD1b

```
GACCGCTGCTCTTGCTACAGGAGACCCGGGACAGAGGACTGCTGTCTGCCCTCTCTCTTC          60

ACTCTGCCTAACTTGAGGATCTGCCAGCCATGAGGACCTTCGCCCTCCTCACCGCCATGC         120
                                  M   R   T   F   A   L   L   T   A   M   L
TTCTCCTGGTGGCCCTGCACGCTCAGGCAGAGGCACGTCAGGCAAGAGCTGATGAAGCTG         180
  L   L   V   A   L   H   A   Q   A   E   A   R   Q   A   R   A   D   E   A   A
CCGCCCAGCAGCAGCCTGGAGCAGATGATCAGGGAATGGCTCATTCCTTTACACGGCCTG         240
  A   Q   Q   Q   P   G   A   D   D   Q   G   M   A   H   S   F   T   R   P   E
AAAACGCCGCTCTTCCGCTTTCAGAGTCAGCGAGAGGCTTGAGGTGCCTTTGCAGACGAG         300
  N   A   A   L   P   L   S   E   S   A   R   G   L   R$^{4}$ C$^{5}$ L$^{6}$ C$^{7}$ R$^{8}$ R$^{9}$ G$^{10}$
GAGTTTGCCAACTGTTATAAAGGCGTTTGGGGTCCTGCGCTTTCGTGGTTGACTCTGCC         360
  V$^{11}$ C$^{12}$ Q   L   L   stop
GGATCTGCTGCCGCTGAGCTTCCAGAATCAAGAAAAATACGCTCAGAAGTTACTTTGAGA         420

GTTGAAAGAAATTCCTGTTACTCCTGTACCTTGTCCTCAATTTCCTTTTCTCATCCCAAA         480

TAAATACCTTCTCGC                                                      495
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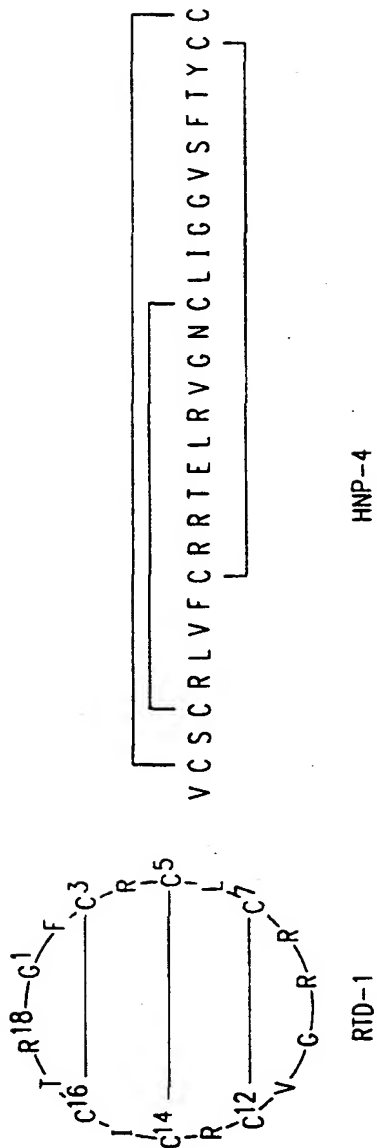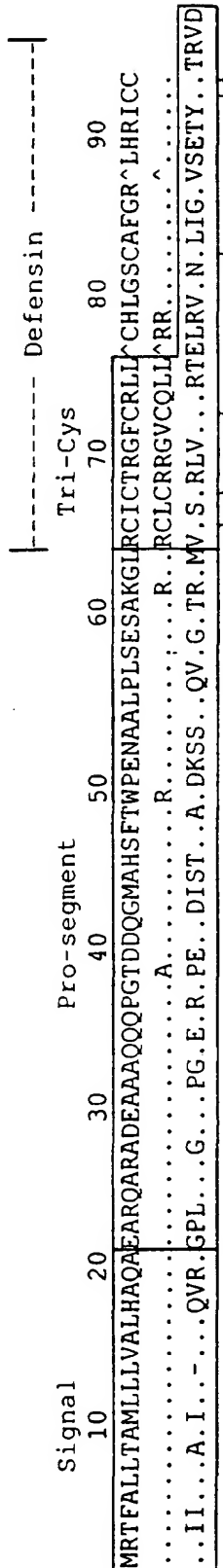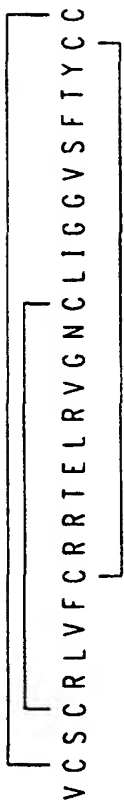
FIG. 11

10/009317

FIG. 12A

RTD-1

HNP-4

VCSCRLVFCRRTELRVGNCLIGGVSFTYCC

FIG. 12B

RTD1.1

```
GACGGCTGCTGTTGCTACAGGAGACCCAGGACAGAGGACTGCTGTCTGCACTCTCTCTTC          60
ACTCTGCCTAACTTGAGGATCTgtaagtaacacaaaacttaaactttcctgtcgaggttt         120
gaacattgaagctgtgccctaatctgacctgtgactcctgggccacccagagagacct          180
agtgggtgaatcccctgctgtgcatttctgtctgaacctctgggggctgctgggagcatt        240
ggctaccagctcaattaatagagaaactcaaggaatttccttctaattacatgtgtccta       300
cttgacacatccaacagagacaacaatagctccttaaaacacccttttgtttggagagaa       360
gccaatccagatcctcggcctgtttttcaatcaggttatttgttatttactattgagttg      420
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GACCTTCGCCCTCCTCACCGCCATGCTTCTCCTGGTGGCCCTGCACGCTCAGGCAGAGGC     1500
ACGTCAGGCAAGAGCTGATGAAGCTGCCGCCCAGCAGCAGCCTGGAACAGATGATCAGGG     1560
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TGTTATAATGTCACCTTGGGTCCTGCGCTTTTCGTGGTTGACTCCACCGGATCTGCTGCC     2400
GCTGAGCTTCCAGAATCAAGAAAAATATGCTCAGAAGTTACTTTGAGAGTTAAAAGAAAT     2460
TCTTGCTACTGCTGTACCTTCTCCTCAGTTTCCTTTTCTCATCCCAAATAAATACCTTCT     2520
CGC                                                            2523
```

FIG. 13A

RTD1.2

```
GACCGCTGCTCTTGCTACAGGAGACCCGGGACAGAGGACTGCTGTCTGCCCTCTCTCTTC        60
ACTCTGCCTAACTTGAGGATCTgtaagtaacacaaaacttaaacttttcctgtcgaggttt       120
gaacattgaagctgtgcacccaatctgacctgtgactcctgggccaccccagagggacct       180
agtgggtgaatccctgctgtgcatttctgtctgaacctctgggggctgctgggagcatt       240
ggctaccagctcaattaatagagaaactcaagaaatttccttctacttacacgtgtccta       300
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aggagacatttgtatcctgaacttactgaacaaagcactgctgttatcctttggtagaac      1140
agtaaaaagtaaatatgtaatgaagtgagaaacaggagaaagatgccaggttcctcatct      1200
tcaccatcctctccatcagcacagacactaaacatagagattcaaactagagtgaaagct      1260
gggagagcaaaagaagaaaacatggacattgagaccaatgggatcccatacaatctccag      1320
tgaaatgcacagctcctctctctgagaaggttcaagatttcctgtctctgagccttctct      1380
ctgcagacatagaaatccagactaactcctctctcccgacttgtctgctcctgctcttcc      1440
tcctccagGCCAGCCATGAGGACCTTCGCCCTCCTCACCGCCATGCTTCTCCTGGTGGCC      1500
CTGCACGCTCAGGCAGAGGCACGTCAGGCAAGAGCTGATGAAGCTGCCGCCCAGCAGCAG      1560
CCTGGAGCAGATGATCAGGGAATGGCTCATTCCTTTACACGGCCTGAAAACGCCGCTCTT      1620
CCGCTTTCAGgtgagacaggccggcatgcagagctacagggtctagagggatggatggga      1680
gacagagtcgggaatcgagtctcagtggtccatgtcacctagatggcttcatttagcatc      1740
tctgggccttggttttctcatctataaattgaatagagagccaaagaagtctaacaggtt      1800
ttctgtctataaagatttgaggcagctctgcctggagagtaaccattcttttattccctt      1860
acttccttaatgatcctttcactttagagaatcaataaaattaaaaaataaaacttgaaa      1920
tcaagatatgtctgtgaaattcaagtaggtttaagacatgaagagacagtctgactagtt      1980
ctttctggattcaaacaagtcatcttcattacacggagaatatttgactgtatctataca      2040
accgtttctaagagtagagacaagcctaagagtgcattcaggtgtttgtgtttgatgggg      2100
cacaggcacaaaaatgagagcaaatgagaataagtctcaaatcctgtgtgaccagcacta      2160
ctctgtgtatttattcctactgactgaggttgttcatgctaccggcccgaatgcagctga      2220
catccctcattagctagcacatgacttctccaggattccctttgtcactcactgcagacc      2280
ttctgatccatttatgatgctttctctgtgtccccagAGTCAGCGAGAGGCTTGAGGTGC      2340
CTTTGCAGACGAGGAGTTTGCCAACTGTTATAAAGGCGTTTGGGGTCCTGCGCTTTTCGT      2400
GGTTGACTCTGCCGGATCTGCTGCCGCTGAGCTTCCAGAATCAAGAAAAATACGCTCAGA      2460
AGTTACTTTGAGAGTTGAAAGAAATTCCTGTTACTCCTGTACCTTGTCCTCAATTTCCTT      2520
TTCTCATCCCAAATAAATACCTTCTCGC                                    2548
```

FIG. 13B

CCTGGAACAGATGATCAGGGAATGGCTCATTCCTTTACATGGCCTGAAAACGCCGCTCTT   60
GGACCTTGTCTACTAGTCCCTTACCGAGTAAGGAAATGTACCGGACTTTTGCGGCGAGAA

CCACTTTCAGAGTCAGCGAAAGGCTTGAGGTGCATTTGCACACGAGGATTCTGCCGTTTG   120
GGTGAAAGTCTCAGTCGCTTTCCGAACTCCACGTAAACGTGTGCTCCTAAGACGGCAAAC

TTATAATGTCAC   132
AATATTACAGTG

FIG. 14A

CCTGGAGCAGATGATCAGGGAATGGCTCATTCCTTTACACGGCCTGAAAACGCCGCTCTT   60
GGACCTCGTCTACTAGTCCCTTACCGAGTAAGGAAATGTGCCGGACTTTTGCGGCGAGAA

CCGCTTTCAGAGTCAGCGAGAGGCTTGAGGTGCCTTTGCAGACGAGGAGTTTGCCAACTG   120
GGCGAAAGTCTCAGTCGCTCTCCGAACTCCACGGAAACGTCTGCTCCTCAAACGGTTGAC

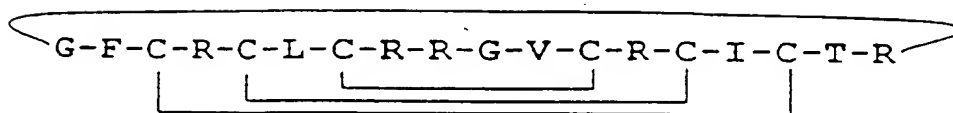TTATAAAGGCGT   132
AATATTTCCGCA

FIG. 14B

```
CCAGGCCATGAGGACCTTCGCCCTCCTCACCGCCATGCTTCTCCTGGTGGCCCTGCACGCT    60
    M  R  T  F  A  L  L  T  A  M  L  L  L  V  A  L  H  A

CAGGCAGAGGCACGTCAGGCAAGAGCTGATGAAGCTGCCCGCCAGCAGCCTGGAGCA       120
Q  A  E  A  R  Q  A  R  A  D  E  A  A  A  Q  Q  P  G  A

GATGATCAGGGAATGGCTCATTCCTTACATGGCCTGAAAAACGCCGTCTTCCACTTCA      180
D  D  Q  G  M  A  H  S  F  T  W  P  E  N  A  A  L  P  L  S

GAGTCAGCGAAAGGCTTGAGGTGCATTTGCACACGAGGATTCTGCCGTATGTTATAACGT   240
E  S  A  K  G  L  R  C  I  C  T  R  G  F  C  R  M  L  end

CGC                                                             243
```
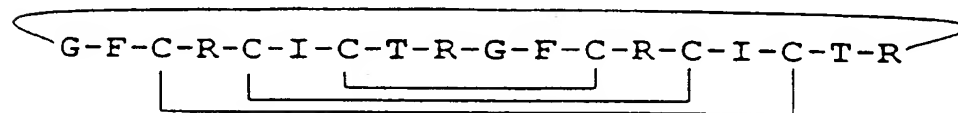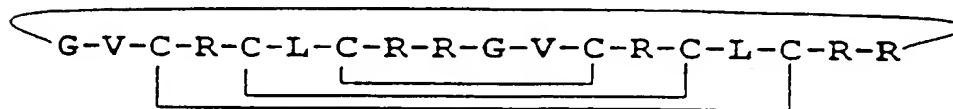
FIG. 15

RTD-1: G-F-C-R-C-L-C-R-R-G-V-C-R-C-I-C-T-R

RTD-2: G-F-C-R-C-I-C-T-R-G-F-C-R-C-I-C-T-R

RTD-3: G-V-C-R-C-L-C-R-R-G-V-C-R-C-L-C-R-R

FIG. 16